A BIRD LOVER'S YEAR

HON. GLADYS GRAHAM MURRAY

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A BIRDLOVER'S YEAR

LAPWING ON NEST

Frontispiece

A BIRDLOVER'S YEAR

BY THE HON.
GLADYS GRAHAM MURRAY

LONDON
EVELEIGH NASH
1915

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IN MEMORIAM
SORORIS DILECTISSIMAE

M. C. G. M.

I climb the hill: from end to end
Of all the landscape underneath
I find no place that does not breathe
Some gracious memory of my friend.

PREFACE

THE following papers, written from time to time as health permitted, embody the observations and studies of one to whom the "life and conversation" of birds afford ever fresh interests. Many of the papers have already appeared in *Chambers's Journal*, the *Windsor Magazine*, *Scottish Country Life* or the *Scotsman*, and the author desires to thank the editors of these periodicals for permitting her to reprint them. She desires also to acknowledge most gratefully the Rev. H. N. Bonar's permission to illustrate her book with some of his admirable photographs of bird life. To Mr. Eagle Clarke, of the Royal Scottish Museum, her thanks are due for much valuable help, and to Mr. Henry Johnston for going over the proof-sheets for her.

GLADYS ESMÉ GRAHAM MURRAY

STENTON, DUNKELD
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CONTENTS

	PAGE
JANUARY:	
I. WINTER BIRD LIFE	3
II. SOME TAYSIDE WINTER VISITORS	6
FEBRUARY:	
THE SONG THRUSH AND ITS TRAVELS	13
MARCH:	
SOME OCEAN WANDERERS	23
APRIL:	
THE RETURN OF THE BIRDS	37
MAY:	
BIRDS AS BUILDERS	47
JUNE:	
THE YELLOW-HAMMER'S LANE	55
JULY:	
BIRD LIFE OF THE HILLS	63
AUGUST:	
SOME TAYSIDE SUMMER VISITORS	71
SEPTEMBER:	
SEA GULLS AND TERNS	83
OCTOBER:	
OCTOBER BIRD LIFE	97
NOVEMBER:	
BIRDS AS TRAVELLERS	107
DECEMBER:	
CONCERNING HAWKS AND FALCONS	131

ILLUSTRATIONS

	To face p.
Lapwing on its Nest	*Frontispiece*
Starlings in the Snow	8
Gannet (*Bass Rock*)	24
Song Thrush	38
Barn Swallow	42
Corncrake's Nest	48
Yellow-hammer on its Nest	58
Wheatear	66
Sandpiper on its Nest	76
Common Tern	84
Woodcock on Nest	100
Grasshopper Warbler	122
Kestrel's Nest in a Ruin	140

JANUARY

I.

WINTER BIRD LIFE

THE gentle days of autumn gradually give way to the stern realities of winter, and by January the shortest day of the year has come and gone.

January in the British Isles is a variable month; there may be a spell of singularly mild weather which has been known to cheat a song thrush into laying her eggs; again, the wild north wind may blow, accompanied by heavy falls of snow. Long ago have the summer visitors hurried south and the bird population have adapted themselves to their winter mode of life.

Nothing disorganizes bird life so much as a long spell of frosty weather; then the question of food-supply at once becomes a problem which is difficult to solve, and much suffering ensues in the bird world.

Among the resident birds such as the tits, finches, and starlings, "packing" is one of the signs of winter. Great companies of

green finches, chaffinches and buntings may be seen patrolling the country-side, whilst hundreds of starlings form themselves into compact little regiments.

The wild-fowl bunch together in hundreds, assembling at the coast, and flocks of geese may be seen passing overhead in V formation.

The song thrush is one of those birds which moves from district to district, whilst his near relatives, the fieldfare and redwing, are to be found everywhere. The missel-thrush wanders from place to place, the larks and the rooks have all united themselves in family parties. A stroll in the woods will be sure to mean meeting little parties of titmice or goldcrests, and any day the hawfinch may be found in company with the chaffinches or green finches.

The dear little wren is a faithful winter resident, and like the robin, will indulge in occasional bursts of song. Another sure friend is the dipper who dives so unheedingly into the ice-cold stream, and here and there are parties of siskins, or the lordly heron flapping overhead.

The solitary woodcock is flushed in winter

along with the snipe, and by the shore there are countless numbers of golden plover, curlew and lapwings.

Certain birds prefer to be our winter guests, such as the crossbill and the shore lark, whilst an Arctic refugee is the brambling, a bird who has travelled from far Arctic forests. The great northern diver also visits our northern coasts, and winter is *par excellence* the time for the arrival of various wild-fowl.

Once January gives way to February the days begin to lengthen out and the storm cock heralds the approaching spring with his wild song. Surely every bird-lover must like this winter songster who so courageously looks forward to the days that are to come, reminding us that the winter will soon be over and that once again "the voice of the turtle" will be "heard in our land."

II.

SOME TAYSIDE WINTER VISITORS

WINTER winds and winter storms alter the whole aspect of Tayside, and the bird-population likewise undergoes a change. It is long since the summer birds flew southwards, and now—

The north wind doth blow,
And we shall have snow.

The entire face of the country-side is altered, and the conditions of life are therefore different; the birds band together more, and search over a much larger area in quest of food. During a severe and prolonged frost wild-fowl are forced to leave their inland retreats and to congregate at the mouths of rivers and on the estuaries. The birds usually found on the high ground descend to the lower, and there is a general shifting of quarters.

The first real winter visitors to arrive are

the redwings and fieldfares, coming from Scandinavia and their far northern nesting-grounds. Both these birds are somewhat like a thrush in appearance, the fieldfare especially resembling the missel-thrush; but neither has ever been known to breed in Britain. Curiously enough, the redwing is usually the first bird to suffer from really severe weather; and, in spite of its coming from the northern part of the Continent, it seems to be less hardy than its fellow immigrant the fieldfare, and even than our native missel-thrush and mavis. During a protracted frost large numbers of redwings are often found starved to death.

The snow-bunting, although a few pairs are resident and breed in the Highlands, is not usually to be seen in this district until the advent of winter, and is most abundant during severe weather. The brambling is a regular winter visitant whose movements seem to be largely dependent upon the food-supply.

Cross-bills are not uncommon, though their movements are highly irregular; whilst the long-tailed and other tits band together in small parties, bent on foraging expeditions.

All through the winter months the different tits are very prominent, as also is the chaffinch. The local birds of the last-named species are reinforced by large parties from their northern breeding-area. The fact of large numbers of cock-birds being seen together in winter led the great Linnæus to christen this bird *Fringilla cœlebs*.

Down from the hills come the golden plover, to join with the lapwings; whilst the starlings feed and roost together in great numbers.

During these winter days one is certain to see many and various ducks. Widgeon, pochard, and golden-eye are regularly to be noticed, along with tufted duck, mallard, and teal, and occasionally the common wild swan (*Cygnus musicus*).

Even though the bird-watcher can no longer idle in the woods to watch for his favourite feathered friends, winter is by no means an uninteresting time in the bird-world; there is always the chance of a glimpse of some rare visitor driven from the north, whilst the absence of foliage makes it far easier to "spot" the new arrivals. By the kindly offices of a feeding-tree or table

STARLINGS IN THE SNOW

one may entertain most of the avine countryside, and so become initiated into much of their private life.

As summer is the time of blossoms, so autumn is the time of berries, and Nature then provides her feathered children with a rich repast. Autumn, however, lasts but a short span, and then comes the rigour of winter, with all its attendant hardships, when one cannot help longing for the day when one may be able to echo the words of the sage: "Lo, the winter is past, the rain is over and gone; the flowers appear on the earth; the time of the singing of birds is come. . . . Arise, my love, my fair one, and come away."

FEBRUARY

THE SONG THRUSH AND ITS TRAVELS

THE song thrush (*Turdus musicus*) is one of the most charming of garden birds; poets have lavished their praises on the nightingale's music, and yet the song of the thrush is hard to beat. This bird has a charm of its own which is difficult to describe; in parks, gardens, shrubberies, and lawns you find him, and again in wild and rocky glens he is equally at home. Throughout the British Isles the thrush is a general favourite, singing early and singing late. There is a great charm in his music, which comprises an infinite variety of notes, rendered in a voice of wonderful "timbre"; on a spring evening after a shower of rain the song thrush seems to sing to perfection.

As an architect, too, this little bird deserves notice, for the nest is both compact and neat, being built of dry grass, small twigs and moss plastered inside with mud

or clay, into which rotten wood is sometimes wrought. In this neat cradle are deposited the four or five eggs of pale greenish-blue colour, thickly marked with deep brown spots.

The song thrush's diet is a varied one, insects of all kinds being eaten, as well as earthworms, slugs, and snails. One often comes across quantities of broken snail shells which have been split open by this bird striking them vigorously against a stone; these stones are sometimes called "thrushes' anvils," the bird using the same stone time after time. It must also be admitted that the thrush is a great eater of fruit, both wild and cultivated.

For a long time the song thrush was thought to be a purely resident bird in the British Isles, but this belief has been disproved, and it is the migrations of the song thrush which concern us here. These migrations are of a varied nature, for the thrush is a partial migrant. Some individuals in certain localities spend the year in our islands; others only pass the summer with us. Again, certain thrushes visit us in winter only, others leave our shores during

the autumn, so that we have the movements of the thrush under eight different conditions —namely, those of

(1) Residence.

(2) Autumn emigration of British summer visitors.

(3) Autumn immigration and passage.

(4) Autumn immigration from Western Europe.

(5) Winter movement.

(6) Spring immigration of summer visitors.

(7) Spring emigration of winter visitors.

(8) Spring passage to Northern Europe.

First let us notice the autumn emigration of our British summer visitors.

In certain districts resident thrushes are to be found, but these birds are only a few of many. At the approach of autumn a large number of the birds which have bred with us emigrate towards the south, the number of departing birds increasing towards the end of September. The thrushes travel in company with other species which have also passed the summer in the British Isles, and the journey takes place at night.

The next movement is the autumn immigration and passage of the song thrush,

and this is noticed during the third or fourth week of September. These birds then appear either as winter visitors or *en passant* in company with early redwings, bramblings, siskins, and goldcrests, and sometimes woodcock, jacksnipe, and short-eared owls. These journeys continue throughout October until the end of November, and " rushes " of large numbers of birds take place from time to time, when for several successive nights thrushes arrive in quantities upon our northern and eastern shores. Such movements are noticed on the east coast of Britain from the Shetland Isles to Norfolk, whilst birds probably partaking of the same movement are also abundant on the west coast. The thrush's travelling companions generally include the fieldfare, blackbird, and ring-ouzel, as well as the birds already noticed. Unfortunately, large numbers of these migratory birds are dazzled by the brilliant light of the lighthouses and lightships, and dash themselves against the glass lanterns and are killed.

Some of the immigrants on arrival proceed along our coasts as birds of passage, finally leaving Britain. Others, again, remain as

winter visitors, and work their way inland by overland journeys. With severe weather the number of departing birds is largely increased.

The next movement to notice is the autumn immigration of the song thrush from Western Europe, when the birds cross the southern waters of the North Sea by an east to west route from the coast of Holland to South-Eastern England. Mr. Eagle Clarke, whose researches upon the phenomena of bird migration are quite unrivalled, has given in his delightful book ("Studies in Bird Migration." Edinburgh: Oliver and Boyd) the most minute details of these complicated journeys. He relates how in the autumn of 1903, when residing on board the *Kentish Knock* lightship (stationed in the North Sea), he observed several "rushes" of song thrushes between September 18 and October 19. These "rushes" took place between the hours of midnight and 4 A.M., and in company with the thrushes were redstarts, pied flycatchers, missel-thrushes, blackbirds, meadow-pipits, wheat-ears, starlings, skylarks, chaffinches, rooks, and jackdaws.

Winter Movements.—The great emigratory movements of winter begin in November, and continue throughout December, January, and February. Mr. Eagle Clarke writes "that these moves are synchronous with outbursts of cold, snow, or unsettled weather." The emigrations last for several days and nights when most of the thrushes on our islands seem to be "on the move."

Next we come to the spring immigration of summer visitors. February witnesses the return of thrushes which have left us in the autumn to winter further south. Mr. Eagle Clarke has a record from the Eddystone Lighthouse for February 19, 1903, when "several song thrushes appeared in company with missel-thrushes, starlings, and other small birds; these immigrations were performed by small parties during mild periods of the month."

The thrushes continue arriving during the first half of March, and with them come blackbirds, larks, meadow-pipits, starlings, lapwings, and curlew: on the south coast of England these arrivals take place during the night or early morning, whilst in Ireland they are recorded during day and night.

The spring emigration of winter visitors is recorded from the middle of March till the end of April. Then those birds that have wintered in our islands proceed to their summer haunts in Northern Europe. Mr. Eagle Clarke records a rush of migrants at Fair Isle on March 22, 1909, when the thrushes appeared in company with fieldfares, redwings, blackbirds, buntings, wagtails, larks, starlings, rooks, and plover.

It should also be noted that during March a certain amount of local migration takes place when the song thrush moves from one district to another.

The last aspect of this famous songster's journeyings is the spring passage to Northern Europe, when the birds which have wintered in South-Western Europe appear on our coasts *en route* for their breeding quarters to the north of our isles; these passages occur from the middle of March to the middle of May. Once again the thrush travels in the goodly company of various other birds, which include redstarts, warblers, corncrakes, wheatears, and ring-ouzels.

Such is the story of the journeyings performed by *Turdus musicus*, journeyings

which Mr. Eagle Clarke tells us are only excelled in complexity "by a few species of British migrants such as the starling and the skylark."

Surely the more we study the subject of bird migration the more wonderful it appears. What is this wonderful instinct which so surely guides all birds "to travel the uncharted"?

MARCH

SOME OCEAN WANDERERS

THE ocean wanderers of the feathered world are renowned and tireless travellers. They are perpetually traversing

The sea, the sea,
The open sea,
The ever boundless,
Ever free.

The frigate bird may head the list, as it is completely pelagic in all its habits. These birds belong to the family Fregatidæ, which are included in the order of Steganopodes (and are therefore allied to the gannets, pelicans, &c.). A few anatomical details may be noticed regarding this group: it will be found that all four toes are connected together by a web which often extends to their extremities. The legs are very short, and the skulls lack the deep grooves for glands in the frontal region which characterize many other aquatic birds. The frigate birds

possess slender bodies, short and thick necks, powerful hooked beaks (with both mandibles deflected), short feathered legs, long and sharply pointed wings, and a deeply forked tail like a swallow's. It is found that the bones of these birds are more permeated with air cavities than is the case with any other known species, and there is a large dilatable air-sac beneath the throat. The great frigate bird (*Fregata aquila*) is found in the warmer regions of the Atlantic, Indian, and Pacific Oceans, whilst the lesser frigate bird (*Fregata minor*) is nearly confined to the Indian and Pacific Oceans, though it has been recorded from the Atlantic also. These magnificent birds—of which the greater measures about a yard in length—are extraordinarily strong on the wing. They sail for long periods with motionless wings, keeping up their flight with apparently untiring zeal. Again, they may be seen indulging in a series of magnificent swoops, for they subsist largely on food which they force other birds to disgorge. The picturesque title of "Son of the Sun" has been given to these birds, which spend their lives perpetually wandering on the

GANNET (*BASS ROCK*)

tropical seas. The late Professor Mosely described a visit to the nesting-grounds of this species, on the island of Fernando Noronha, where the birds built their nests on the verge of an inaccessible precipice, though on another island (Raine Island) the nests were on flat ground. One egg, of white colour, is laid, and during the courtship the male bird expands his scarlet pouch and droops and spreads his wings. The tropic-birds, or boatswains, belong to the family Phaethontidæ, and in appearance are not unlike the terns, being somewhat inferior in size to the common gull. They range over all the tropical seas, and constantly follow in the wake of vessels. During the breeding season great numbers of the tropic-birds frequent the Bermudas and the Pacific Isles, and breed in companies, the nest being simply some unlined hole in the rocks.

The ocean wanderers that now remain to be considered are all members of the tube-nosed order of birds (tubinares). They have acquired their name from the fact "that the external nostrils are produced into tubes lying upon the surface of the beak and

directed forward, this feature being absolutely peculiar, and serving at once to distinguish them from all other birds" (Lydekker's Royal Natural History). All these tube-nosed birds are both marine and carnivorous, and live on carrion, fish, and any refuse they can pick up. They are strong on the wing, and can pursue a long-sustained flight. Remains of birds of this group have been found in the lower Miocene strata of France: to-day they are found to have a wide range, more especially throughout the Southern Seas. The albatrosses head the list, and are characterized by the extreme length and narrowness of the wing, also by an exceedingly large number of quills in the wing; these birds are included in one genus (*Diomedea*), are all of large size, and mainly frequent the southern tropical and subtropical seas; one species, however, ranges as far north as Alaska. It is an interesting geological fact that the remains of a fossil albatross have been found in the Pliocene deposits of the east coast of England. The wandering albatross (*Diomedea exulans*) finds its true home in the South Seas; its average

weight is only about seventeen pounds, whilst the span of its wings varies from ten to twelve feet. It is a strictly oceanic bird in its habits, and rarely visits the land save for breeding purposes. The powers of flight of this bird are quite marvellous. That well-known ornithologist, the late Mr. Gould, observed that "although during calm or moderate weather this splendid bird sometimes rests on the surface of the water, it is almost constantly on the wing—and is equally at ease while passing over the glassy surface during the stillest calm or flying with meteor-like swiftness before the most furious gale; and the manner in which it just tops the raging billows and sweeps between the gulfy waves has a hundred times called forth my wonder and admiration. Although a vessel running before the wind frequently sails more than two hundred miles in the twenty-four hours, and that for days together, the albatross has not the slightest difficulty in keeping up with the ship, but also performs circles of many miles in extent, returning to hunt up the wake of the vessel for any substances thrown overboard." Professor Mosely states that

these birds make the utmost use of the momentum acquired by a few powerful strokes of the wing, whilst they take all possible advantage of the wind, and progress largely by a gliding movement. He also adds that they move their wings more frequently than is generally supposed. In the breeding season the albatrosses repair in large numbers to remote islands and isolated oceanic rocks; there they take up their abode in separate pairs. The nest is said to be cylindrical, made of tufts of grass, &c., with a shallow cavity on the top for the bird to sit on. It contains only one egg, which is white in colour, occasionally with red spots, and rather larger in size than that of a goose. The male birds are reported to stand or sit near their brooding partners, and an interesting point to notice is that during incubation the egg is held in a kind of pouch.

The petrel family (Procellariidæ) differ in a few points from the albatrosses. The largest member is the giant petrel (*Ossifraga gigantea*), which measures thirty-two inches in length, with a wing-span of about sixty-six inches. This bird is distinguished on

account of its large size from all other petrels. It is found widely distributed over the temperate and high southern latitudes, occasionally wandering north of the Equator. The giant petrel almost equals the albatrosses in power of flight, but differs somewhat in habits, for it subsists mainly on blubber and flesh of dead seals and whales, as well as on the bodies of birds. The late Professor Mosely compared it to an oceanic vulture, and wrote that this bird "soars all day along the coast on the look-out for food. No sooner is an animal killed than numbers appear as if by magic, and the birds are evidently well acquainted with the usual proceedings of the sealers, who kill the sea-elephant, take off the skin and blubber, and leave the carcase. They settled down all round in groups at a short distance, a dozen or so together, to wait, and began fighting among themselves as if to settle which was to have the first bite." Once these birds are fully gorged, they are quite unable to fly, and if disturbed will emit an evil-smelling oily fluid. The breeding grounds are found on Kerguelen and Prince Edward's Isle, the nest being a natural

hollow of the ground, in which is laid one dirty-white egg.

The gull-like Fulmar petrel (*Fulmarus glacialis*) is found in the Arctic regions and other parts of the Northern Hemisphere, and breeds in the boreal regions of both the Old World and the New. The island of St. Kilda is a well-known British breeding station of these birds, and the natives there collect the eggs as an article of food. In habits the fulmar petrels are swift and easy on the wing, and may be seen resting on the water in tremendous seas; during a gale they fly low, skimming along the surface of the water. The silver-grey petrel (*Thalassæca glacialoides*) is allied to the fulmar. This bird is found in the Pacific and Southern Atlantic, extending as far south as the Antarctic pack-ice, where its place is taken by the snowy petrel (*Pagodroma nivea*). The Cape-hen and the spectacled petrel are both large southern species, whilst the numerous group of middle-sized, dark-coloured petrels known as shearwaters (genus Puffinus) are characterized by long, slender beaks, long and pointed wings, and a graduated tail of twelve feathers, and their

distribution is nearly cosmopolitan. As a rule, shearwaters are divided into two groups according to whether their under parts are white or dusky. In the Mediterranean, Western Europe, and East Atlantic occurs the cinereous shearwater (*Puffinus kuhli*), whilst the great shearwater (*Puffinus major*) is found in the Atlantic Ocean (being also an occasional autumnal visitor to the British Isles).

The Manx shearwater (*Puffinus anglorum*) frequents the whole of the North Atlantic, and is the commonest British representative of the group. The dusky shearwater (*Puffinus obscurus*) is found in both the Atlantic and Pacific Oceans, whilst the sooty shearwater (*Puffinus griseus*) has an equally extensive range, being recorded as an occasional straggler to our islands. Following the shearwaters comes the genus Oestrelata; the capped petrel (*Oestrelata hæsitata*) is a member of this group, and is found in the warmest parts of the Atlantic. Mention must also be made of Bulwer's petrel (*Bulweria columbina*), which frequents the Atlantic in the vicinity of the Canaries and Madeira. The Cape petrel (*Daption*

capensis) is an inhabitant of the South Atlantic and South Pacific Seas, occasionally straggling northwards of the Equator. From its resemblance to a pigeon, this bird is known in Cape Colony as the Cape pigeon, whilst another name is the Pintado petrel. These birds are frequently met with in large numbers in the Antarctic Seas, and whalers report that they congregate round their boats in order to secure any scraps which may be thrown overboard. They are graceful birds when seen hovering in the air or else darting down to the surface of the water, and often diving. During stormy weather they not infrequently go close in to land, whilst they are found breeding on Tristan da Cunha and Heard Island, and probably breed also on some of the Antarctic islands. The dove petrels (Prion) are much smaller birds. The common dove petrel (*Prion desolatus*) has a swallow-like flight, and may be seen in flocks round about a ship, as well as cruising over the sea. They have been termed whale birds from their habit of attendance on these mighty leviathans of the ocean. As regards their food, it consists chiefly of the surface-life of the

ocean, which includes small crustaceans. The eggs are laid singly in some burrow. The storm petrel (*Procellaria pelagica*) is the smallest of British web-footed birds, its whole length being rather less than six inches. This little bird is supposed to have derived its name (now extended to the whole group) from the habit of walking on the waves, which called to mind the time that Saint Peter also walked upon the waters. It is essentially a child of the ocean, being met with far out at sea, where it hovers over the water in a butterfly-like fashion. The range of these birds is confined to the more northerly portions of the Atlantic, and, save during the breeding period, they are rarely seen in the vicinity of land.

The small wedge-tailed petrel (*Halocypetna microsoma*), seen off the coast of Lower California, is allied to the little storm petrel, as are also Leach's petrel (*Cymocherea leucorrhoa*) the fork-tailed (*Oceanodroma furcata*), and Hornby's petrel (*Oceanodroma hornbyi*). Wilson's petrel (*Oceanites oceanicus*) forms one of a sub-family consisting of birds larger in size than the storm petrel. This bird inhabits the Atlantic Ocean and

the Australian seas, whilst the white-bellied petrel (*Cymodroma grallaria*) is found in tropical seas. All these petrels are noted for their powers of swimming and flight, but have little skill as divers. There is, however, a remarkable aberrant petrel (*Pelecanoides urinatrix*), inhabiting the Straits of Magellan. This bird differs from all its congeners in possessing short wings along with great diving powers. In appearance it is said to resemble an auk, but ornithologists unhesitatingly class it among the petrels. The late Professor Mosely wrote that these birds were to be seen in large numbers in Royal Sound, where they could be observed diving with rapidity, and then fluttering along the surface of the water to disappear once again. All these feathered tramps wander far afield beyond the reach of man save for the occasional passing vessel. Their home is "on the waters deep," and rarely do they visit land. To them is given the ceaseless strength and energy to "travel the uncharted."

APRIL

THE RETURN OF THE BIRDS

To the birdlover the spring months are fraught with particular interest, for then is the season when the "birds come north again," and long before midsummer is reached the migrants have established themselves in our hedgerows and woods.

Among these welcome visitors we find some of the most famous songsters, such as the nightingale and blackcap; though in Scotland we are not favoured with visits from the former. Some of the voyagers do not tarry with us, being bound for more northern quarters; others, again, come to stay.

Should spring-like conditions occur during the end of February, the southern coasts of England and Ireland receive the first birds to return from their Continental winter retreats. These birds are partial migrants, and among them are found song-thrushes,

missel-thrushes, starlings, skylarks, and rooks.

In contrast with the arrival of the summer birds is the departure of our winter guests to their summer quarters.

March, as the proverb tells us, is a variable month, expiring winter and advancing spring meeting together; but to the naturalist and the farmer it is a most important season.

Among the returning local birds we find the pied and gray wagtails, each the epitome of grace and neatness; whilst mallard, teal, and woodcook are seen moving northward. But perhaps it is the arrival of the real summer visitors which thrills us most. About ten different birds arrive regularly between the middle and the end of March. These birds are the ring-ouzel, the wheatear, the chiff-chaff, the willow-warbler, the swallow, the sand-martin, the wryneck, the garganey, and the Sandwich tern.

Various other birds are of course recorded, but they cannot be counted as regular March arrivals. Again, in Scotland the dates of arrival are rather later than in England, usually about a fortnight; whilst in Ireland the swallow is seldom seen before

SONG THRUSH

the beginning of April. It is interesting to note the approximate date of arrival of some of these spring birds, though of course these dates vary from year to year. The chiff-chaff is usually the first little traveller to arrive in England, about March 16, reaching Scotland about a fortnight later. This little bird belongs to the group of warblers, and is to be found during the season of primroses and wild hyacinths in the woods and gardens. Its song is scarcely melodious, but it has a particular charm which is perhaps associated with the thought of returning summer. "For, lo! the winter is past, the rain is over and gone."

The blackcap and the willow-warbler are usually noted as arriving respectively on March 22 and 23. These are both garden birds of singular charm. The blackcap's vocal powers allow it to compete with the nightingale; and, though its song is inferior in power and compass, it equals that of the nightingale in sweetness. Gilbert White of Selborne described the song of the blackcap as "full, sweet, deep, loud, and wild." This charming bird is usually found in gardens and shrubberies, and will return again and

again to its old haunts. At the beginning of the season the blackcap is often to be heard practising its song.

The willow-warbler is a great garden favourite, and it is hard to imagine a more attractive little bird, with its joyous, laughing notes. It may be seen flitting from bush to bush, pausing to hover in the air over its insect prey with the quivering motion of a miniature kestrel.

The swallow's usual date of arrival is March 21, the sand-martin being recorded two days earlier, and the house-martin a fortnight later. The swallow has always been regarded as the herald of summer, and town and country residents are alike favoured with its presence. The sand-martins, who build in colonies in sandbanks, are equally attractive to watch; and who does not hail with pleasure the sight of the house-martin with its snow-white "patch," which shows so clearly as the bird flies to and fro and up and down?

The garden-warbler waits till April 15, ere it reaches the English shores; whilst the wood-wren usually precedes it by three days.

The nightingale, which is due on April 8,

the cock-birds arriving before the hens, sings by day as well as by night, and continues its song till the first or second week in June. The nest is constructed of dead leaves loosely put together, and generally placed under a bush. The distribution of the nightingale has always been a problem in ornithological geography. For instance, why should this bird keep aloof from the counties of Devon and Cornwall, counties which seem so ideally suitable for these birds if they would only come? And yet the nightingale has fixed boundaries which it will not overstep.

Summer is icumen in,
Loud sing cuckoo!

and by the first week in April this bird is to be found in England. The wryneck usually precedes it by ten days; whilst the nightjar is due about April 18.

The swift is not one of the early arrivals; the end of April sees it in England, and the beginning of May in Scotland. Perhaps the first sight of the swift as it dashes through the air is one of the pleasantest records in the bird-lover's diary, for the swift seems

to embody such perfect grace with perpetual motion.

The common tern is also a latish arrival, about the middle of April; whilst the dotterel's record is April 20.

Besides the mighty stream of arriving migrants, there is also the emigration of our winter birds. Moving northward are to be seen great numbers of song-thrushes, blackbirds, redbreasts, goldcrests, chaffinches, buntings, redpolls, starlings, rooks, skylarks, geese, wild-duck, woodcock, and various other birds. Surely birds are famous travellers, and the whole study of migration a most fascinating one. Mr. Eagle Clarke, who is probably the greatest living authority on the subject, has given in his most fascinating book, "Studies in Migration" (Edinburgh: Oliver and Boyd), all the records of the year, as well as the theories which account for these wonderful seasonal voyages. He tells how, when watching at the Eddystone Lighthouse on April 11 to 12, 1892, he witnessed a mighty stream of migration which took place between the hours of 8.45 P.M. and 11 P.M.: "At midnight hundreds of ring-ouzels and redwings came

BARN SWALLOW

upon the scene, accompanied by starlings and swallows, and a perfect cloud of small birds, composed of redstarts, nightingales, blackcaps, tree-pipits, and many other species."

The beginning of June witnesses the close of the spring migration, and the months that follow are full of nursery joys and cares. Soon, too soon, the hours of summer fly; but one of the joys of bird-watching is that each season has its especial attraction.

Sing a song of seasons,
Something good in all;
Flowers in the summer,
Fires in the fall.

MAY

BIRDS AS BUILDERS

Birds are the architects of the animal kingdom and one involuntarily considers them as nest builders. Nevertheless, the type of nest constructed varies enormously; with some birds there is practically no nest, whilst others fashion a highly complicated structure.

In looking at a few of the nests of British birds, it is well to start with the simplest forms, and so ascend to the more complicated. The ringed plovers prepare practically no nests for their eggs, which are simply deposited in a hollow on the sand or shingle, whilst the lapwing lays its eggs on the bare furrows of the fields. The guillemot selects for its nursery some rocky ledge on the cliffs, a situation which is also shared by the razor-bill. The night-jar believes in the safety of *terra firma* and duly deposits her eggs upon the bare ground; the jack-daw again is glad to take advantage of the

labours of others and builds an untidy nest in holes or fissures of rocks, being especially fond of rabbits' burrows.

What birdlover does not love the "cawing" of the rooks? Their nests are simple constructions of twigs, placed on tree tops at great heights, a rookery showing how gregarious are these birds.

The peregrine falcon trusts to inaccessibility for safety, and the eyrie is a simple affair, usually placed in most unget-at-able situations; the same also applies to the home of the golden eagle.

Ducks' nests are fairly simple affairs; it is the lining of down plucked from the hen's breast which gives to them the air of warmth and comfort. Most of the ducks place their nests in open situations or under the shelter of a bush. The celebrated eider duck prefers to nest close to the sea, often on some low rocky islet, whilst the sheldrake is partial to disused rabbit-holes.

The sand-martin excavates a tunnelled nest on the face of some clay, earthy or sand cliff, or in the soil at the edge of a quarry. The opening is bored with the bill, all loose material being cast out by the feet. These

CORNCRAKE'S NEST

tunnels go inwards for a long way, and at the end is found a loose nest of dry grass and straws and feathers upon which the eggs are placed. Sand-martins breed in colonies, returning season after season to the same cliffs, which become riddled with their holes.

Kingfishers are also tunnel-nesters, either appropriating any stray deserted burrows, or else excavating holes for their own use. The rock dove is a cave haunting bird, and colonies of these birds breed in the caves on the west coast of Scotland.

Turning to the green woodpecker, one finds a nesting hole most carefully bored into the heart of various trees. The woodpecker's bill is a most powerful and efficient tool and both sexes assist at the work. The eggs when laid, are placed on the powdered wood and chips at the bottom of the hole. The titmice are also fond of hiding their nests in rotten stumps of trees, whilst nut-hatches too, will gladly avail themselves of these opportunities whenever they occur.

Of the platform-built nests, there is, as well as the rook's, the wood-pigeon's, a

very simple affair of twigs laid criss-cross. The herons again breed in colonies and build their nests on the tops of tall trees. They are large and flat and covered with a soft layer of rushes or dry grass.

Among the game birds, the partridge prefers a nest which is a slight hollow well protected by tall grass or other herbage, whilst the pheasant also lays her eggs on the ground, likewise using some protection from the coarse grass or a friendly hedge. The grouse finds shelter for her eggs amid the depressions in the heather.

The sparrow-hawk either appropriates some disused nest for her own, or else erects an affair of sticks and twigs which is placed in some tall tree, and the kestrel if forced to be her own architect, will probably find some hole or niche on a cliff which she will convert into her nursery.

The missel-thrush is an early builder, and makes a large saucer-shaped nest, which is usually set in the fork of some tree. The nest is made of twigs, dry grasses, wool and lichens, into which some mud is worked; then the inside is lined with fine grasses. The song thrush is one of the cleverest and

neatest of avine architects. The outside of its nest is a thick affair of grasses, moss and twigs, whilst the inside is lined with a plaster of mud and clay, the nest being moulded into a cup shape by the hen bird moving round and round inside. The blackbird builds a very similar nest externally, with a different lining, and the chaffinch weaves into her compact little nest scraps of green moss and lichen, "felting" the materials together and lining the inside with hair and feathers. The linnet and the white-throat build cup-shaped nests of dry grasses, twigs and moss, whilst the goldfinch has a beautifully woven little cradle of fine roots and grasses neatly lined with feathers, down and horsehair. The long-tailed tit rivals the song thrush as an architect, and his exquisite little home takes a long while to make. It is an oval ball of moss, wool and lichens, felted together with a covering of flakes of lichens, cobwebs and gossamer. The inside is simply a mass of feathers, which these little birds have collected.

Turning to the dipper we find a totally different class of nest; a great ball of moss

close to the water is the nursery formed for the baby dippers and the situation is often such that the parent birds have to fly through falling water in going to and from the nest. With the skylark and the corncrake we have two open types of nest which are simply slight hollows in the ground, protected by the long grass.

Such a variety of nests are there, that it is impossible to do more than glance at a few types, and to marvel at the skill which some birds display as builders.

JUNE

THE YELLOW-HAMMER'S LANE

THE Lane I write of is "a little winding road that leads to the hill and back again," —a lane which sees but few people and which is full of a lonely charm. In spring it is rich with wild flowers; the blue anchusa climbs up its banks and the best foxgloves of the season fill the deep spaces beneath the dyke, whilst a passing shower of rain lets loose the fragrance of the sweetbrier. The yellow bedstraw and cow wheat form a partial carpet, and in early spring there is that wonderful vanilla scent from the gorse, or as it is called in Scotland, whin.

It was Linnæus who on coming across the flowering gorse wrote in his journal "I saw God in His glory passing near me, and bowed my head in worship."

It is of the bird life of the lane that I write, and the chief feature thereof is the

presence of the yellow-hammers. These little birds seem to have made this "little winding road" so particularly their own that it is known as the Yellow-hammers' Lane.

The yellow-hammer is well known to all country people, for it is one of the most generally diffused species in the British Isles. As a traveller the yellow-hammer is not one of those birds who seek to "travel the uncharted"; its journeys are local ones. In autumn and winter yellow-hammers form into little companies, often associating with other finches and buntings, and together these form a winged patrol of the hedgerow and country-side.

But the summer months are the joyous period of the yellow-hammer's existence, and then throughout the whole day one hears its monotonous little song, a song which has such a charm of its own with the slow drawn out cadence of the last separate syllables.

The greenfinch and chaffinch are also to be seen in large numbers in Yellow-hammer Lane, and during the summer months the gentle little willow wren, that

comes flying over many a windy wave
To Britain,

calls softly from the trees that are gathered on the right-hand side. This latter bird is one of the real migrants who undertake twice yearly a mighty over-seas journey in order to reach our shores at nesting time. These are the birds of passage

that change their sky
To build and brood; that live their lives
From land to land.

In the Lane the blackbird "plays on his boxwood flute," and that prince of songsters, the thrush, may be heard and seen at all times of day, but here again one notices during the winter months the diminished number of song thrushes that are to be seen —only an occasional bird.

How quickly the summer days pass, and how eagerly one awaits the return of spring! Then is the time for bird song, when the lanes and woods seem almost vocal, "and upon his dulcet pipe the merle doth only play." Then, like Tennyson, one waits to hear the song thrush "Sing the new year in under

the blue," and the clump of trees in the Yellow-hammer's Lane, "to whose topmost twig a thrush resorts," is *the* place to repair to.

Together with the martins the swallow comes back "With summer o'er the wave," to be followed by the swift, that bird who has so completely mastered the art of flight and whose aerial evolutions must be a joy for ever to behold.

Standing in the Lane one sees "above in the wind the swallow; chasing itself at its own wild will," whilst from the neighbouring wood "Cuckoos cry again." Then one knows that summer is at its height, that "the sweet of the year" is o'er all the land.

There can be no pleasanter way of passing an afternoon than to spend it in the Yellow-hammer's Lane. The bird watcher should take his plaid and binoculars, and with some chocolate in his pocket or a "thermos" over his shoulder, let him defy time; he will find the hours speed all too quickly. One is certain to see the tits, cole, blue and great, whilst the tiny wren will betray its presence by its burst of song; the robin is

YELLOW-HAMMER

there too and you cannot fail to see the starlings in the adjacent field. As the autumn approaches these birds will begin to "pack" and form themselves into little companies.

The lapwings also inhabit the fallow field which "marches" with the lane, and in the spring one occasionally comes across the curlew, or sees him passing overhead, giving utterance to his lonely and musical "pipe."

Partridges may be seen in close proximity to the lane, and a nest with a dozen eggs is no uncommon find.

The redstart is a summer visitor who has found his way to "the little winding road," and he may be seen flicking his tail as he flits along the hedge or the dilapidated little stone dyke, overhead.

One espies the quivering motion of the kestrel as it "hovers" over its prey. This latter bird deserves great encouragement on account of the check it keeps on mice, voles, &c. It is a charming little falcon, so full of grace and energy, and a kestrel "hovering" in mid-air is one of the prettiest sights in the bird world.

Wild duck are sometimes to be seen on their cross-country flight from a chain of lochs which lie beyond the hill, to the river which meanders through the valley, and an occasional sight is the lordly heron flapping on his way.

The long-tailed tits in gay little parties are constant visitors to the Yellow-hammer's Lane. One sees them tossing in the air like animated balls of fluff. Then the corn-bunting is also a frequent sight whilst the wood-pigeon "clatters" out from an adjacent wood to fly post-haste on his unknown business.

The missel-thrush is a favourite bird, and in November the fieldfares and redwings arrive for the winter months. So each day of the week, and each month of the year, the birdlover will find a stroll down the Yellow-hammer's Lane to be full of interest, for

All day long a bird sings there,
And a stray sheep drinks at the pond at times.

Yes, there is a secret and undefinable charm in that "little winding road that leads to the hill and back again."

JULY

BIRD LIFE OF THE HILLS

THE bird life of the hills has an especial charm of its own; lonely are the surroundings and wild is the scenery, so to the bird-lover a day spent "over the hills and far away" is a day to remember.

The heaviness of the air in the valley made it pleasant one afternoon in early July to mount upwards in the motor into the heart of the hills, where a fresh breeze blew whilst a light mist swept o'er the "high tops." One thousand feet up, and now one is beside the watershed of two mighty rivers, the outline of the hills beside us folds into graceful curves leading to the high hill which blocks the end of the valley. Up this hill a lonely little path wanders, which were one to follow it would lead one into a sudden descent to the shores of the mighty loch beneath, but to-day we halt where we are, beside a small loch and with the hills on every side.

Dismissing the motor *pro tem*, we saunter idly to the shores of the loch, our path leading through the fragrant bog myrtle. A flock of lapwing rise at our approach and we notice at once their curious flapping flight. The green plover, though always to be seen in this district, vary in numbers, which proves that to a certain extent this bird is a migrant. Now the little flock composed of some twenty birds flap away from us, and through the binoculars we see them alighting on a projecting knoll of moorland some two hundred yards away.

The heather is barely in bloom yet, though here and there are patches of bright mauve bell heather in full bloom. Suddenly at our feet a little party of golden plover arise and fly quickly towards the hill. These charming birds pass the spring and summer on the moorlands, descending in autumn to the plains and lowlands. During their autumn flights the golden plover travel in large flocks, keeping in close array and sweeping upwards or downwards, twisting to right or left with all the precision of a well-drilled regiment of soldiers. Their flight is rapid and their wing-beats short. During

the spring-time these birds are far easier to approach, and it is but a small party that we put up this July day. Even as the golden plover disappear over the brow of the hill the long plaintive whistle of the curlew is heard as two of these birds pass overhead.

Perhaps the sight of the curlew is the greatest charm of a day spent on the high ground. There is such music in the lonely piping cry, and the whaup (to give this bird its Scotch name) is as charming a bird to watch as any, be it flying overhead or prowling in the ooze.

From autumn till spring the curlew repairs to the coast, but at the approach of the nesting season the call of the hills once again allures these lonely birds to their wild nesting places. During the autumn the curlew will be found on the lower ground probably *en route* for his winter quarters, and when flighting these birds usually adopt a V-shaped formation, a pattern of flight so often adopted by waders.

The grouse cannot be overlooked, for already we have put up many, and whilst we are unpacking our tea-basket we disturb two young birds at close quarters.

Now the mist is beginning to thicken and towards the east a driving storm of rain is to be seen sweeping over the hills. The colour seems to fade away from the waters of the loch whilst the wind stirs the ripples into miniature waves. Black-headed gulls fly overhead, and pipits and starlings are to be seen at close quarters.

The bog myrtle scents the air, and crouching among its long shoots are a couple of partridges which whirr away at our approach.

And now a dunlin suddenly springs from beneath our feet and flies off in zigzag fashion to the edge of the loch. The dunlin is a shore bird that repairs to the hills for the nesting season, and is often to be seen in company with the golden plover. The high piping notes tell us that a "flock" of these birds is now close at hand, and suddenly they sweep past us, with a rapid and twisting flight.

How quickly has the afternoon passed! Already it is six o'clock, and we have many miles to travel ere we reach our home in the valley. As we walk to the road to rejoin our motor, wheatears innumerable are to be seen, here perching on a stone, there

WHEATEAR

alighting on a bush as they flit before us and past us. How joyous is the life of these hill birds, free from all cares and molestation!

And so we face for home and turn our motor towards the valley, our thoughts still full of "the charm of the hills."

AUGUST

SOME TAYSIDE SUMMER VISITORS

To walk along a riverside is always pleasant; but it is doubly pleasing during the summer months, especially if the traveller happens to be a birdlover.

Tayside is one of the many charming spots to be found in "Caledonia stern and wild," which is not only a meet nurse for the poetic but also for the ornithological child.

The bird-population of Britain is roughly estimated at nearly four hundred species, of which number about one-eighth are summer visitors to our shores. These feathered travellers pass their winters in far southern climes, and when early spring arrives in the north temperate zone are dominated by the marvellous impulse to migrate northwards in order to produce their young in their own birthplace.

Though to-day much is known about

migration, the underlying impulse still remains a complete mystery. Thanks to the most painstaking labours of some of our celebrated naturalists (and above all to Mr. Eagle Clarke of the Royal Scottish Museum in Edinburgh), the movements of migrating birds are no longer shrouded in mystery; their routes and dates of departure and arrival are all in course of being tabulated, and every summer one may count upon welcoming one's old friends to their breeding-haunts of former years.

'Summer is coming, summer is coming!
I know it, I know it, I know it.
Light again, leaf again, life again, love again';
Yes, my wild little poet.

TENNYSON.

That one swallow does not make a summer may be true, but summer-time without the swallows would be impossible to conceive of. They are wonderful travellers, those frail little birds; and year after year they tenant the same nests on our shores. They are perpetually on the wing hawking for insects, and seem almost to have mastered the secret of perpetual motion.

Round the eaves of houses,
Swallows, as they flit,
Give, like yearly tenants,
Notices to quit.

So wrote Tom Hood, and, alas! it is only too true. By October the most of these gentle little visitors have taken their departure. The writer remembers watching a large departure of swallows from Grindelwald, in the Canton de Berne. The birds assembled in vast arrays towards the end of September, and for some days crowded on to the telephone and telegraph wires; then, when their army grew large enough, they silently started on their long voyage, leaving behind them one belated mammalian traveller.

The sand-martin is the earliest of the swallows to arrive and the first to leave. Its eggs are laid in holes in the sandbanks along the riverside, which these birds excavate with their delicate little beaks. Indeed, the banks have a riddled appearance owing to the enormous number of holes which are dug so close to one another. At the end of these little galleries are found

the nests, each composed of dry grass, with a few feathers, and containing four or six pure-white eggs at a time, there being generally two broods in a season. To watch the sand-martins hawking up and down the river is a charming sight. They fly to and fro rather like bats, and during the breeding-time the parent birds feed their young most assiduously. It is always such a sad day when these summer visitors depart! One imagines them winging their way to their winter quarters in China, India, and south-eastern Africa, where, alas! one cannot follow them, and now one must wait another seven or eight months until one can see them again. How true were the lines that Christina Rossetti wrote:

The days are clear,
Day after day,
When April's here
That leads to May;
And June
Must follow soon.
Stay, June, stay!
If only we could stop the moon,
And June.

Swifts are not allied to swallows, being structurally connected with the hummingbirds; but this fact was not known to the older naturalists, and Gilbert White of Selborne constantly alludes to these graceful birds as together forming one family. From Tayside this bird departs by about the middle of August. There is the puzzling question as to whether these birds while with us spend the entire night on the wing. One sees them mounting higher and higher, with unabated energy and vitality; and, wait as one may, one does not see their descent. Yet there must surely be some answer to this puzzle, which so far has met with no satisfactory solution.

The sandpiper's arrival is one of the joys of summer, and its musical whistle is first heard about April. This little bird generally has some favourite haunt, and when "put up" from the shingle flies swiftly over the water, keeping close to the surface, whistling its melodious pipe. These notes somewhat resemble the ringed plover's in tone, as does also the quality of the flight. By the end of September this mighty traveller

departs from Tayside to its winter quarters, which extend to Africa.

Beside the river one may perchance hear the notes of the sedge-warbler, who is the singer of the night. The wanderer may sit and listen to this little bird's song ere he turns his steps towards home and bed.

Leaving the riverside, one may next ramble along a narrow lane which winds upwards towards the hill. Here whitethroats and willow-warblers are to be seen and heard. A small garden lies close to the little lane and shelters the wood-wren; here also one may pause awhile and listen to the twittering of the birds and the buzz of the insects.

I know a lovely garden
Where dwell the sweetest flowers,
And there from morn to even
I pass away the hours.

Alas, how quickly do the hours of summer-time fly! If the bird-watcher is also somewhat of a dreamer he may rest here for many an hour hidden behind the briar-bushes, which grow sufficiently high to shut out the view of the few passers-by, whilst the fly-catcher perches on the railings. From

SANDPIPER ON ITS NEST

the cornfields close by is heard the corncrake's rattle: each time one flushes this bird one is struck anew by its weak, languid flight; yet it migrates twice a year to and from its winter quarters in far southern climes.

At the end of the lane there comes "a little winding road which leads to the hill and back again," and the first spring bird usually to be seen here is the wheatear. This traveller comes to our shores during March, migrating in autumn to regions south of the equator. It has a peculiarly jerky flight, and may be found high up above the level of the Tay valley. It is a delightful bird to watch, for it is sprightly and lively in its movements. Here, too, the redstart may flit past, alighting on a furze-bush; and while one pauses to watch this little bird through the binoculars one hears the cuckoo calling from the far-off woods:

Summer is icumen in,
Loud sing cuckoo.

The wayfarer who is fond of bird-watching must never be in a hurry, and there is no better or happier way of spending a summer

afternoon than lying on one's plaid hidden away by some bush or tree; for with the aid of one's field-glasses—and these are a priceless treasure to any naturalist —one may see any amount of birds and become initiated into their daily life and labours.

The Tayside skies can be of a marvellously blue colour, which reminds one of the Riviera; and while one gazes high o'erhead one catches sight of the rapidly vibrating wings of the kestrel, as it hangs poised in the air prior to making a swoop. The prey of this falcon consists chiefly of mice, rats, and such small deer, so that it is an *ally* and not an *enemy* to the farmer. The "wind-hover" is another name by which this bird is known. The kestrels we may notice during the winter months are birds which have come to us in autumn, while most of our summer residents move farther south. This is the way with a great many of our so-called resident species, there being a partial and mainly local migration or substitution of individuals, instead of a total migration, clearing all individuals of the species out of the country.

A delightfully musical cry strikes one's ear, and in the distance may be seen three curlews speeding towards a far-off stretch of moorland. Perhaps this bird's pipe is more full of lonely music than that of any other.

Oh curlew, cry no more in the air,
Or only to the waters in the west,
Because your crying brings to my mind
Long heavy hair that was shaken out over my breast.
There is enough evil in the crying of the wind.

So wrote W. B. Yeats in his charming little volume of lyrics. During the winter months the curlew, along with the oyster-catcher and redshank, repairs to the coast-line, and may be seen during the short winter days feeding on the mud-flats.

As the summer day draws to a close one by one the birds cease singing, with the exception of the sedge-warbler, who has been called "the nightingale of the north." The twilight vanishes slowly, and it is almost midnight before "there is darkness over the land," so soon to be followed by a glorious sunrise. Let the wayfarer pause for a moment. *Ave atque vale.*

Summer too is quickly passing, and who does not re-echo the poet's thoughts :

Alas, that spring should vanish with the rose !
That youth's sweet-scented manuscript should close !
The nightingales that sang on yonder bough—
Ah, whither are they gone, and how ?

SEPTEMBER

SEA GULLS AND TERNS

THERE is a peculiar charm about the sea-birds which is felt probably by every bird-lover. Maybe it is partially owing to the environment of these birds that one feels such an especial interest in them, for what is more delightful on a sunny day in summer than to take up one's station on some rough cliff and from thence to watch the terns diving for their prey? "*Que chaque age a ses plaisirs*," is a true adage, but the glory of the naturalist is that his hobby is a life-long one. The more one studies birds, the more does one's interest grow, and there is no group more fascinating to watch than that which comprises the gulls and terns.

Ornithologists formerly associated the terns, skimmers, gulls and skuas with the petrels, but they are now regarded as allied to the *limicolæ* (or plover tribe) with which they agree in the arrangement of their

plumage though there is a difference in the skulls of the birds: the resemblance to the petrels is superficial only and related to their similar ways of life.

Terns and gulls are noisy and sociable birds, frequenting generally the sea coast, though many gulls are to be found inland, especially in Scotland where the sea is never very distant. Some species of gulls breed on the coast-cliffs, others again repair to flat islands, inland lakes and bogs during the nesting season.

The flight of these birds is particularly graceful and powerful; they seem to be able to float in mid-air, and then to slant gently down on to the water where they "ride at anchor."

Terns are more aerial than gulls and they poise themselves with an elegance which is graceful in the extreme.

The food of all these birds consists mainly of fish and refuse, but inland gulls consume large quantities of worms and insects. The range of this group is cosmopolitan and geologically it appears to be one of the oldest existing orders of birds.

Owing to their swallow-like build and

COMMON TERN

graceful flight terns have been aptly called "sea-swallows." Indeed among all the British birds there is no more graceful flier than the tern. To see this pale grey bird with its buoyant hovering flight is to see perfect symmetry on wings. The tern skims along, now high, now low, now hovering, now balancing and then with a sudden stoop the wings close and it executes a perfect dive. A shower of foam and spray mark where the fisher disappeared to reappear shortly with its prey in its bill.

How many delightful hours can the bird-lover pass away watching the terns fishing! It is a sight one can never tire of or watch too often.

The Common Tern (*Sterna fluviatilis*) and the Arctic Tern (*Sterna macrura*) are both migrants to our shores, arriving in spring and departing in autumn. The arctic tern ranges farthest north, and is the commonest species off the coast of Scotland. These birds breed in *immense* communities, their nests being placed close to each other on rough grass and shingle, or sometimes on bare rock.

The common tern closely resembles the arctic, the difference being that the former is slightly less slender in build, its under parts are dull white instead of pale gray, and its beak is tipped with black and is coral red instead of blood red.

The Roseate Tern (*Sterna dougalli*) has a slightly slimmer body, shorter and narrower wings and a greater length of tail, whilst the under plumage is tinged with a peculiarly delicate rose colour. This bird is becoming a rare visitor to the British coast, and has abandoned many of its old breeding stations, so that it is no longer often to be seen.

The Little or Lesser Tern (*Sterna minuta*) measures about eight inches in length, the forehead and under-parts are pure white in colour and the bill orange with black tip. This species is much less numerous than either the arctic or common tern, though in habits they closely resemble each other.

The Sandwich Tern (*Sterna cantiaca*) is the largest of the British terns. It has a heavier flight, whilst its wings beat more rapidly. On the Farne Islands where pro-

tection is afforded to these birds, there exists a large colony of Sandwich terns, but in other localities they are becoming scarcer and scarcer. This is partly owing to the shore-shooter and to the greed of the "collector." The latter individual has been severely and justly anathematized of late; every egg collector should be chary in the extreme of taking the eggs of those species of birds which are yearly becoming rarer.

Besides these species of terns, there are other very rare visitors.

The Caspian Tern, the Gull-billed Tern, and the Black Tern have been recorded in Britain, whilst the whiskered tern, white-winged black tern, sooty tern, lesser sooty tern, and noddy are all *rare* stragglers. These three last hail from the tropics.

The gulls as a sub-family are characterized by having the upper mandible of the beak longer than the lower, whilst the tail is usually squared.

The Kittiwake (*Rissa tridactyla*) is the smallest of the British breeding gulls, and is to be found from Cornwall north to St.

Kilda. The nests are placed close together on some rocky cliff (for these birds breed in colonies) and herein are to be found two, three and sometimes four eggs.

The kittiwake feeds principally on small fish, and is to be seen hovering motionless above the water ere it descends with a rush to capture its prey.

The Herring Gull (*Larus argentatus*) is in the habit of following the herring shoals (hence its name) and may often be seen hovering above the fry, prior to dropping on to the surface of the water. Besides this it picks up any floating garbage and during the nesting season is a great devourer of eggs and young birds.

In rough weather the herring gulls wander far inland and are often to be seen following the plough.

Herring gulls are to be found over a widely extended area, breeding in Northern Europe and the Isles of the Atlantic, whilst they occur as summer visitors in the north of Africa.

The name "common" as applied to the Common Gull (*Larus canus*) is somewhat of a misnomer, this bird being only a winter

visitor to England (for it has no breeding-place south of the border).

Like the herring gull it also follows the plough and roams over moorland and pasture land. The eggs are laid on islands off the sea coast, or in inland lochs.

The Black-headed Gull (*Larus ridibundus*) is the most widely known of all our gulls and wends its way far inland. As far as food is concerned "All is fish that comes to its net," for small fishes, crustaceans, dead animal matter and insects all form part of the black-headed gull's bill of fare. The characteristic mark of the brown hood is not assumed till springtime, being invisible during the winter months. During the month of March these gulls withdraw to their breeding-places, where they congregate in immense numbers.

The gulleries (which are usually situated in some marsh or mere) are resorted to year after year, the largest one being at Scoulton Mere in Norfolk, where thousands of birds breed annually.

The eggs vary largely in ground colour, from olive-brown to pale green or buff, three or four being the usual number to be laid.

The black-headed gull is one of the prettiest birds to watch on the wing, whilst its guttural laughing cry has gained for it the specific name of *ridibundus*. The Lesser Black-backed Gull (*Larus fuscus*) is another well-known bird. In this as in other species of gulls the young differ greatly from the adult birds, so that the novice may fail to recognize them.

The lesser black-backs are both robbers and fighters, and levy severe toll upon the eggs of the other sea-birds. They are gregarious birds and during the breeding season congregate in huge numbers, the largest British Colony being on the Farne Isles.

The great Black-backed Gull (*Larus marinus*) is now a rarish bird in Britain. Its habits are similar to those of the lesser black-backed, but it is more oceanic and has been described as the "vulture of the sea."

Besides these gulls, the Ivory gull (*Pagophila eburnea*) is an occasional straggler to the British coast; this bird is a circumpolar inhabitant of the Arctic Seas, but wanders into temperate regions during the winter,

its breeding-places being found in Spitzbergen and other far northern regions.

The Glaucous Gull (*Larus glaucus*) is the largest of all British visiting gulls. This is an essentially old world Arctic bird, and only wanders in winter to temperate and tropical regions.

The Iceland Gull (*Larus leucopterus*) is another rare British visitor from Arctic regions.

Sabine's Gull (*Xema sabinii*) is distinguished by the forking of its tail; it is not a very uncommon straggler to the British Isles, its breeding quarters being in Arctic America and Siberia. Mention must also be made of the visits of the Little Gull (*Larus minutus*), but all these latter birds are only rarely to be seen and their appearance cannot be forecast with any certainty.

Closely allied to the gulls are the skuas, though the late Mr. Howard Saunders considered that they formed a family by themselves. These birds are predaceous in their habits and their build. They eagerly devour the smaller water-birds and their eggs as well as fish and carrion. The skuas rarely take the trouble to fish for themselves, but

chase the smaller gulls with fury and force them to disgorge their recently swallowed prey, which the skuas catch with marvellous rapidity.

There are only two members of this species which breed in Britain: the Great Skua (*Megalestris catarrhactes*) and Richardson's Skua (*Stercorarius crepidatus*). This last bird is both circumpolar and subarctic in its breeding range. In Britain it nests in the Hebrides and the Orkney and Shetland Isles, as well as in the counties of Caithness and Sutherland. The great skua is to be found breeding in the Shetland Isles.

The Pomatorhine Skua (*S. pomatorhinus*) is a regular winter visitor to the north of Britain whilst the Long-tailed Skua (*S. parasiticus*) (an Arctic species) is only to be seen on rare occasions.

These birds close the list of the gull-like family, so dear to the heart of the writer. In this world every one has his own favourites among man and beast, but surely there never was a more charming spectacle to behold than the sea-swallow plunging for its daily food, or a group of gulls hovering with outstretched wings preparatory to

alighting on the surface of the ocean. The sea, that "Great Mother of us all," has an untold charm for all who love to watch her varying moods, and her feathered children add to the interest thereof.

OCTOBER

OCTOBER BIRD LIFE

AUTUMN has been portrayed as a "season of mists and mellow fruitfulness," and surely it is an apt description. There is a haunting sadness in the lingering beauty of October. The wonderful glory of the autumnal foliage reaches its height and the colours of the woods seem to crown Nature's efforts ere winter enfolds all things in her grasp. Once again the birdlover knows the year is reaching its close for October is, so to speak, the "term time" of so many birds.

Round our eaves in autumn,
Swallows as they flit,
Give like yearly tenants
Notices to quit.

Already it is many weeks since the sandpiper's plaintive and diminutive whistle was heard on Tayside, whilst the swifts and sand-martins have long since taken their departure. The corn has been cut and the

partridges are once again strong on the wing, whilst the lordly pheasant has but a short time more of security ere covert shooting begins.

One of the conspicuous signs of autumn in the bird world is the assembling of certain birds into little parties. The starlings begin to " pack " in earnest, flying over the fields in little companies which increase in numbers. as the days decrease in length. Finches are also to be seen in companies which fly to and fro, and on Tayside there is usually an incursion of pied wagtails *en route* for more southern quarters.

The oyster-catchers are moving towards the coast, whilst the swallows are preparing for their long journey to far southern climes ; there is a general air of activity and briskness, for expiring summer and advancing winter are preparing to join hands. During this month the autumn migrations of birds reach their greatest magnitude. Vast numbers of summer residents begin to move south from Northern Europe, with the result that our country is flooded by successive rushes of migrants.

In contradistinction to these departing

birds of passage there is also the *arrival* of great numbers of winter visitors which have selected the British Isles for their hiemal quarters.

With the appearance of autumn and the disappearance of the standing corn, partridges form into larger coveys, becoming each day more wary and difficult to approach. It is not easy to estimate the pace at which a driven partridge will fly, particularly with the wind at its back, but as one watches the rapid skimming flight of these birds one realizes how strong they are on the wing.

The woodcock may be found any day in the woods resting after his arduous journey from the Swedish peninsula, whilst those of his brethren which nested with us have now joined the rush of migrants and are proceeding southwards. Chaffinches and linnets are flocking on the open stubble and the golden plover have come down from the high ground.

There is perhaps nothing more charming to watch than the wonderful aerial evolutions of these neat little birds. With what precision do they wheel and turn, whilst

they utter their plaintive piping whistle and swish overhead into the next parish! To the lowlander the coming of the golden plover is one of the ornithological treats of autumn.

But perhaps the chief feature of October is the settling down of the different birds into their winter quarters and the local movements of our so-called residential species. Nearly all birds indulge in a certain amount of travelling, be it only of a local nature; the thrushes and finches all move from place to place, as do also the linnets and even the tits. October is the time for these small journeyings, when so many little birds cross over the march, their place being filled by their congeners from the next county.

The long-tailed tits form into parties along with other small birds and scour the countryside, whilst the skylark, who is a real overseas traveller, will be joining in the autumnal journey south.

In the garden the robin sings sweetly as he "eyes the delver's toil," the tiny wren gives burst to his amazing little volume of song, and ever and anon the tree creeper

WOODCOCK ON NEST

flits up the stem of the trees. Song thrushes are to be seen in plentiful numbers, whilst redwings and fieldfares usually arrive towards the end of the month from their summer quarters in Northern Europe.

These latter birds (which belong to the family of thrushes) pass the winter with us and may be seen until the spring months reappear, when once again they wend their way far northwards, for neither fieldfares nor redwings have so far ever been known to nest in Britain.

By October the wild-duck is strong on the wing and may be seen flighting every evening. Later in the year the severer weather will bring in many rarer species, but at present there can be no more charming sight than a "mist o' duck" as they fly in on a bright October moonlight night. What music there is in the swish of the wild ducks' wings as the flock passes high overhead, adhering to the V formation of flight, a music which is only equalled by the honking of the passing wild geese.

Strolling over the stubble one puts up a stray covey of partridges which whirr away

at a great pace, whilst a little regiment of starlings wheel over one's head.

Parties of siskins and linnets may be seen, and close to the farm-steading one meets a mixed company of sparrows, finches and yellow-hammers. In the woods the wood-pigeons are feasting on the beech nuts, and patrol the country-side in flocks. With what speed and vigour do these birds fly, how difficult it is to approach them!

The gambols of a little party of long-tailed tits is pleasant to watch. These dear little birds have such a charming undulatory little flight, as they dip

To and fro
And high and low.

ere they finally disappear from one's view.

Truly autumn is a season of mists and mysteries; there is such a sense of fascination in the lifting of the mist, the childish feeling of wonderment as to what is hidden beneath the soft grey folds of an autumn afternoon.

In the other gardens
And all up the vale,
From the autumn bonfires
See the smoke trail.

Pleasant summer over
And all the summer flowers,
The red fire blazes,
The grey smoke towers.

Are these not "*les plaisirs d'automne, plaisirs qui passent si vïte*"?

NOVEMBER

BIRDS AS TRAVELLERS

In the whole realm of Nature there is no exact analogy to the migration of birds—"birds, joyous birds of the wandering wing." They are the great travellers, the winged vagabonds of life; but their vagrancy is conducted on well-considered lines. Their pilgrimages are seldom uncertain; there are regular principles to guide their nomad careers, their courses being carefully chosen and lying within fairly definite areas.

The essential facts of migration are generally familiar. We know that every spring we look for the return of the swallows, the herald birds of summer, and we are sure that as autumn comes round they leave our shores again until the following spring; whilst in the autumn the fieldfares and redwings visit us, remaining throughout the winter and taking their departure as spring returns. All this we realize, and yet there remain many unsolved

problems in connexion with this wonderful subject.

We must not confound tne regular migration of birds with local movements. For instance, the voyage of the sandpiper from the banks of the Tay to its winter quarters in Africa is quite a different affair from the oyster-catcher leaving our midlands for the coast-lines. Migration proper is that mysterious instinct which urges many birds to set out twice a year on a long and perilous expedition by certain well-defined routes; and we owe much to the patient researches of those naturalists who have taken up their quarters in such spots as Heligoland, the west of Denmark, and Fair Isle, over which the stream of migration passes, for most of the knowledge we possess.

Lighthouses and lightships are the best stations from which to study the subject at first hand. The Isle of May, for instance, is visited yearly by two naturalists, Miss Rintoul and Miss Baxter, who compile most interesting reports on the various birds which, passing that region, are attracted by the great lantern. The fact that hundreds of birds are killed by dashing themselves

against the glass is a reminder that wherever the footsteps of man are traced it is often at the expense of the wilder denizens of the earth.

At St. Catherine's Point, near the southern end of the Isle of Wight, there is a large lighthouse. One can readily imagine the marvellous glare of an electric light of fifteen thousand candle-power and I was informed by the keeper that the heat generated inside the lamp was so great as to melt a lump of metal as though it were a piece of wax. Here, as in most other similar places, the guardians of the lighthouse keep a schedule of all the birds that come within their observation. These records, along with specimens of the dead birds, are forwarded weekly to the Secretary of the British Ornithologists' Union, whose duty it is to study these notes and to formulate a yearly report. The lighthouse-keepers are also able to identify many birds which pass sufficiently close to be seen or heard, and others which are so exhausted that they rest on the building before proceeding on their flight.

Let us try to picture the travels of a

swallow when it leaves us in the autumn, in order to gain some slight idea of what migration means. To arrive at its winter quarters in West Africa, the swallow may fly direct across the Mediterranean or by the short cut to Gibraltar, or from Italy to Malta, and so to Algeria and across the Sahara Desert; or it might follow the coast-line, and so come to Liberia and the Gold Coast, or it may choose the Nile valley, which is a great migration-route for thousands of European birds. A naturalist living in Delagoa Bay has told us how a swarm of swallows once took rest after a storm, and sat in rows on the cornice and bedstead until the morning sun beckoned them out again.

The direct Nile route is taken by many species which reach Cape Colony and the Transvaal. The kestrel, the sedge-warbler, and many other birds, some of naturally weak flight, perform this great journey twice a year. Another route of migration extends along the coast of China directly south to the Malay Archipelago, and by this route travel many warblers; another stream of migration extends to Formosa and the

Philippines, a third route trending apparently towards the Burmese countries.

Migration is not always direct from north to south or *vice versa*. In Great Britain a great stream of migration sets in from east to west in the autumn, whilst in the Arctic regions the migration of Ross's rosy gull appears to be more from west to east. The same phenomenon occurs in the Mediterranean, where an east to west migration crosses the lines of flight which extend from north to south. But on this subject of migration-routes one dare not be too dogmatic, as undoubtedly there is still much to be learnt on the matter.

The enormous elevation at which some birds fly has led a very eminent foreign naturalist, Herr Gätke, to put forward the theory that in these very high altitudes the birds meet with far less air resistance than in the lower levels, and are thus able to accomplish their journeys at a greater rate and with less fatigue. An American naturalist, Mr. Scott, saw one night, through an astronomical telescope, great numbers of birds passing across the face of the moon, and computation showed that these autumn

migrants were travelling at heights varying from one to two miles. Amongst the birds he saw were warblers, finches, woodpeckers, and "blackbirds." At these great heights birds must be subjected to very severe cold; but the exertion of flight no doubt helps to keep up their circulation, which is always at a high pitch—the average temperature of a bird registering from 104 to 108 degrees (compared to the 98·6 of a human being).

Herr Gätke describes how from 10 P.M. on the night of October 28, 1882, until the following morning the little gold-crests eddied round the lantern on Heligoland as thick as flakes in a heavy snowstorm. But given the paths, going and coming, of migratory birds, the marvellous and inexplicable question still remains; How do they so unerringly accomplish these immense journeys? Year after year the migratory cuckoo will deposit her eggs in our isles, and yet in each interval of time she will have spent a long period wandering in the heart of Africa. Sight alone can hardly be regarded as affording much aid, for, to start with, migration nearly always takes place at night.

The probable reason for this is that night is not a feeding-time with the birds; whereas, if they were to migrate by day, a fast of over twenty-four hours would be entailed. Again, there is a little bird (a particular form of blue-throat) which yearly repairs from its winter home in Egypt and the valley of the Nile to the northern parts of Scandinavia, scarcely halting, it is said, south of Heligoland—during this great journey.

A Russian naturalist, Dr. von Middendorf, is of the opinion that a migrating bird is aware of the northerly direction, and is accordingly able to steer its course; but this theory is by no means accepted by other equally competent observers. Professor Mobius put forward the hypothesis that birds performing long migrations over the sea might be guided by observing the roll of the waves. A curious point is that among the swallows, for instance, the young start on migration before the older birds, and in many other species the young and old journey apart. The former, therefore, are not guided by experience, yet they arrive safely at their destination. Doubtless many birds *do* perish in migration; but

still, millions of them must make their great bi-annual journeys in perfect safety.

Amongst the migrants are many short-winged and feeble-flying birds who usually do not indulge in long flights; yet when this instinct possesses them they are capable of performing great journeys. Special attention must, therefore, be paid to the fact that migration is performed at such a height as to alter greatly the conditions of air-resistance, buoyancy, &c., owing to the rarefied condition of the atmosphere; and it is also possible that birds are assisted by selecting favouring wind-strata. Travelling at such a high level would mean an extension of the field of view; and Mr. Chapman, a well-known ornithologist, worked out a rough calculation which showed that birds flying at an altitude of twenty-five thousand feet would have a tangential extent of vision of two hundred and twenty-five miles, while those flying at thirty thousand feet would have a vision of two hundred and forty-five miles. Thus, "in the first-named altitude," he says, "birds would in daylight see England before leaving Norway, whilst at the higher level those crossing Spain would

see Biscay before leaving Africa." Experiments made by Mr. Frank Chapman, in America, with an astronomical telescope directed towards the moon, revealed birds passing at an altitude of from one to five miles. The essential question, however, still remains as to how birds are guided in their wonderful migrations, and the old answer holds much truth when it says that "the finger of God points the way."

Why birds should migrate is another unsolved problem, for migration is quite distinct from distribution. Our summer visitors leave our shores in autumn, and this is no doubt partly due to the fact that the cold of winter robs them of their food-supply. As regards insects, the actual cold itself would not probably matter so much, provided there were an adequate food-supply of other kinds, for birds found dead in winter have generally died of starvation and not of cold. Doubtless our summer migrants hasten to southern latitudes to escape the winter; but why should they return to our shores at the very time of year when there is often a great dearth of food and almost winter-like conditions to greet them,

leaving behind them lands of warmth and plenty ?

Frequently birds are rather premature in their arrival on our shores, for they are met with all the horrors of starvation and cold. The late Mr. Seebohm describes, in his travels in Siberia, the arrival of the summer migrants when that country, in spite of the time of year, was still in the grip of winter, and he tells of the pitiable plight of the travellers. But each brood of birds, in turn, seems to be animated with the desire to bring forth their young in their own birthplace, so year by year " the birds come north again " in order to mate, and reproduce their species. This latter instinct is often accounted for by the theory that the original cooling of the earth took place at the north and south poles ; thus the then existing birds were forced towards the equator during the colder portion of the year : but on this subject there are many and diverse theories.

The speed of the flight of birds on migration varies greatly, as also does the length of the journey taken at a single stretch. Herr Gätke was of the opinion that the little

Arctic blue-throat (a species of warbler) left Africa at dusk and arrived in Heligoland nine hours later, having travelled one thousand six hundred miles on a stretch at the miraculous velocity of one hundred and eighty miles per hour, and this little bird is only about the size of our robin. The flight of an eagle over a valley in the Pyrenees was estimated at about one hundred and forty miles per hour, that of the swallow at ninety miles per hour, and the swift's rate of travelling at double that speed, whilst some carrier-pigeons are reckoned to travel about fifty miles per hour. Pigeons have been shot in America in whose crops were found coffee-berries in such a fresh condition that they could not have been swallowed more than four or five hours before, yet the nearest part of the country known to produce these berries was some hundreds of miles distant.

The structure of birds is especially adapted for flight. Their bones are light, and in many cases contain air in place of marrow, whilst the whole build of the bird tends towards an aerial existence.

Many of the sea-birds pass all their life on the open ocean, being found at a distance

of one thousand miles from land, save in the spring, when they congregate on islands in order to lay their eggs. The great frigate or man-of-war bird, which surpasses all other birds in power of flight, seldom visits the land, and is found in tropical seas. The storm petrel is another wanderer of the ocean, as is the albatross. These birds spend all their lives on the high seas.

In the Antarctic regions the penguins represent bird-life, but these birds have lost their power of flight, and their wings have dwindled into flippers, which are of far more use to them in their present aquatic existence.

The swallow, swift, and sand-martin journey to Africa for the winter, as do also the sandpiper, kestrel, and cuckoo, and nearly all our warblers leave us for southern latitudes. The woodcock comes to us from Scandinavia and the northern districts, as do the redwing, fieldfare, and snow-bunting. Flocks of chaffinches come also, probably from the same country; and as these flocks were formerly supposed to be composed entirely of cocks, Linnæus christened the bird *Fringilla cœlebs*, or the bachelor finch.

There is also a local migration, our thrushes, skylarks, and many others moving into counties and districts farther south. The quail is an interesting traveller, and in 1912 a pair were known to breed in Haddingtonshire, their winter quarters being Asia and Africa. This species of quail must be the bird which fed the Israelites in their march across the wilderness. When with us the quail is a ground-dweller and does not essay any long-sustained flight, yet this bird wanders across seas, vast deserts, and lofty mountain-chains, and by means of the migratory instinct is widely diffused over the three great continents of Europe, Asia, and Africa.

The stork spends the winter in Cape Colony and India, passing in spring into Denmark, Holland, and Germany. The nightingale, "light-winged dryad of the trees," passes in summer into England, Germany, Switzerland, and France from its winter quarters in the far south; but never as a rule penetrates beyond Yorkshire, and is hardly ever known to have been seen farther west than Somersetshire, though there seems no apparent reason to account

for this fact. Most of our warblers and song-birds are migrants, as are also the redstart and wagtail.

Every spring brings us thousands of birds from Asia, Africa, and the Mediterranean, coming in mighty streams along their chosen routes; the main body perhaps crossing the Strait of Gibraltar, going along the east coast of Spain, up the valley of the Ebro, over the Pyrenees, and by the Bay of Biscay, till they reach Cape Finisterre, and thence flying across the Channel. France also contains three main lines of communication, the southerly stream coming up the Rhone valley to Lyons, and then crossing to the Loire valley at Orleans, and passing thence to our shores *via* Cape La Hogue and the Start Point. Another stream comes up the Italian coast from Turkey and Greece, and through the Swiss passes into Central France; whilst others take the most northerly route through the Danube valley, passing through Zurich on to Rheims, and reaching the Channel near Boulogne and Calais. Some birds fly straight across the Mediterranean at its widest part—that is, from Algeria to Marseilles—and there hundreds of thousands

of birds massed together take part in migration.

There is some parallel to migration to be found in other zoological tribes. For instance, the salmon descends to the sea after spawning in fresh-water, and in tropical countries sometimes great journeys are undertaken by masses of insects. Swarms of locusts or ants pass over districts and leave behind them utter devastation, whilst hosts of butterflies and moths occasionally cross the Channel. There are curious little rodents, the lemmings, found in northern countries, which now and again band together in enormous numbers and rush blindly on and on until they reach the ocean, where they all perish. But with the exception of fish, none of these are proper and regular migrants. It is the birds who are the real and systematic travellers.

Following the course of the sandpiper, we find him in the month of March still in his winter quarters, which may be India, South Africa, or Australia. But when "the spring's cool kiss is on the sod," the instinct to migrate dominates this little bird, and

before March is out he sets forth on the long and perilous voyage. From a country of tropical heat, with vegetation and climatic conditions to correspond, the sandpiper turns towards northern climes. He may take the route which skirts along the coast, passing Delagoa Bay and coming down the great Nile valley. Arriving there, he may continue westwards to Algeria, and on to the Strait of Gibraltar, there to cross into Spain, flying across the fertile plains of Andalusia, over the snow-capped passes of the Pyrenees, and thence through France, crossing the Channel either from Ushant at the extreme west, or from Boulogne or Calais. The different conditions of climate through which the bird must pass are great: from tropical heat, with the fierce glare of a southern sun, through more temperate regions where still the palm and the cactus grow, across the mighty ocean, until the colder shores of England are reached. Or the sandpiper might pass through the heart of Africa, crossing the mighty Sahara Desert, and from Tripoli or Algiers over the huge expanse of the Mediterranean Sea, through Turkey and Bosnia, and across the passes

GRASSHOPPER WARBLER

of the Tyrol into the valley of the Danube, and ever westwards.

The sandpiper which has passed the winter within the Indian Empire journeys *via* the Arabian Sea into Persia, and thence on to Turkey. Thousands and tens of thousands of our birds take this mighty journey twice a year, in order to lay their eggs in the woods and coppices of European countries, extending into Great Britain, Scandinavia, and Siberia. In the autumn the return journey is undertaken, and the same dangers faced anew, this time by masses of young and inexperienced birds. Some birds seem to arrive in a much more exhausted condition than others. A pipit coming in from the sea generally alights on the first field to which he comes. Larks, on the other hand, fly low and in little parties, uttering their call-notes, and appearing to suffer no distress.

Migrants usually pass straight on into the interior, but some wading-birds rest by the way to feed, and then proceed by easy stages. Other birds, again, arrive in a most exhausted condition, and thousands are snared and netted as they cross some of the

passes and valleys of France and Italy. The birds which are lost are generally the victims of severe gales, which carry them completely out of their reckonings. When true ocean-birds are found scattered inland it generally means that the weather of the Atlantic has been very violent. In the October gales of 1892, two different kinds of petrels, the eastern limit of whose ocean range is as a rule the Azores, were blown on to our coasts. The late Mr. Cornish was of the opinion that birds have an instinctive knowledge that if they once surrender themselves to the force of the wind and allow themselves to drift they are lost.

Occasionally there is a curious and sudden migration of a certain species previously unknown to our shores. An instance of this was afforded by Pallas's sand-grouse, a bird which ranges from Northern China across Central Asia, and as a rule never visits Great Britain. In 1888 an incalculable number of these birds arrived, but as far as I know no reason was forthcoming to account for the circumstance.

The late Mr. Seebohm, who was also a great traveller, during one of his visits to

the Petchora River, in the north of European Russia, brought to light an interesting fact in connexion with the travels of birds. In company with Mr. Harvie Brown, he undertook an expedition with the object of finding the eggs and nests of half a dozen of our winter visitors who leave us every spring and retreat to the far north, and whose breeding-places had not been hitherto located. These birds were the gray plover, the curlew-sandpiper, the sanderling, the little stint, the knot, and Bewick's swan, all of which are winter arrivals on our coasts.

The region which Mr. Seebohm visited was along the Petchora River, near to which is the mighty tundra or region of treeless swamp. This is a quite uninhabited land, and is for eight months out of the twelve covered with snow; but so great are the attractions of the tundra to thousands and tens of thousands of migrants that the pageant of their arrival must strongly impress every intelligent observer. He furthermore revealed what the secret attraction was. At the beginning of the month of April, when Mr. Seebohm arrived at Ust Zylma, three hundred miles from the

Petchora River, he found that with the exception of one or two ravens there was not a bird to be seen on the tundra. As is usual in this region, summer came suddenly and swiftly, and almost simultaneously the birds arrived. The frozen river began to melt under the hot sun, and geese, swans, ducks, gulls, redstarts, wagtails, pipits, and a host more of birds (with hawks pursuing them) began to appear on this boggy moorland. For an explanation of this fact we must look to the perpetual sunshine of the short Arctic summer, which forces into maturity enormous crops of fruits, such as the cranberry, cloudberry, and crowberry. Winter, however, arrives so soon that the snow descends on these fruits, and thus they are preserved perfectly fresh and pure all through the winter until the coming spring. The fruit never decays under its covering of snow, and is accessible the moment the melting sets in. Experience has taught the birds that they will find an unlimited supply of crystallized fruits awaiting them each spring, whilst the same heat that melts the snow naturally brings forth insect life of the most prolific nature, and thus

the insect-eating birds are equally provided for.

That birds are mighty travellers we clearly see, and year by year most of us look forward with delight to the reappearance of the summer visitors to our woods and lanes. It, therefore, behoves us to accord them as much protection as we can, doing all in our power to further their increase, remembering, as the great theologian and philosopher, St. Thomas Aquinas, wrote, "*Ubi aves ibi angeli.*"

DECEMBER

CONCERNING HAWKS AND FALCONS

THE birds of prey have a particular charm for most birdlovers. Their peculiar grace and strength form a perfect combination, so that naturalists of the past generation placed the accipitrine birds at the head of their list. To-day this honour has been yielded to the perching or passerine birds.

In former days birds of prey were to be found in great numbers in the British Isles. During the reign of King Charles II. the kite acted as scavenger in the streets of London. Now, alas, this fine bird is very rarely to be found in the United Kingdom. The strict protection of game has undoubtedly led to the destruction of many of the birds of prey, and consequently these birds, when seen, are only to be found in wild and inaccessible parts of the country.

This paper is concerned with "diurnal

birds of prey;" that is to say the various owls are excluded, though it may be noticed that one not infrequently meets with the Short-eared Owl (*Asio accipitrinus*) during the hours of day-light.

The Osprey (*Pandion haliætus*) is one of those birds which must now be placed, alas, on the list of vanishing species, as far as breeding in the British Isles is concerned. Formerly these birds were plentiful in Scotland; now there are only one or two pairs to be found.

The osprey has an immense range, being found in Europe, Africa, parts of Asia, Japan, Formosa, Australia, New Guinea, and America. According to some naturalists, it is structurally classed in an order connecting the owls with the diurnal birds of prey.

The osprey varies from about twenty-two to twenty-four inches in length, and feeds almost exclusively on fish, which it captures, in salt and fresh waters, by plunging from aloft, and then bearing away its prey in its talons.

Turning to the true falcons, it will be seen that a difference exists between them and

the shorter-winged hawks. The falcons are more graceful birds, and excel the hawks in speed of flight. Falconry and hawking were, therefore, two different terms used for the different branches of a noble pastime, to distinguish the kind of birds which were employed and the kind of quarry pursued.

To-day, falconry is but little practised in the British Isles (which along with Holland, in former days, were the two European countries where that sport was much in vogue). The enclosure of land and, above all, the "shootings" of to-day have undoubtedly been the causes of the decline of falconry; but it will ever remain one of the finest sports, and the training of hawks and falcons is really a fine art, which has to be seen in order to be fully appreciated. Doubtless there is also something to be said against hawking on account of the element of cruelty which pervades it, but that, alas, has to figure in every sport of the kind.

Among the Arabs and Persians, and in North-Western India, falconry is still largely indulged in, and the training of hawks is reduced to a marvellous *finesse*. All those

who are interested in this subject should read a most delightful work which has recently been translated from the Persian.*

Some ornithologists include in the *genus Falco* all the European falcons, whilst others separate the gerfalcons and the kestrels. Many hawks and falcons which are included in the British list are seen here only on migration, and it will be understood that these are *not* British breeding birds. Some, indeed, have very slender rights to be included among the British avifauna of the present day.

Under the title of gerfalcons are included certain large falcons coming from northern regions. The colour of their plumage generally tends to a grey or whitish shade. The Greenland Falcon (*Falco candicans*) is an occasional wanderer to this country, coming usually from Greenland or North America. As it is the lightest-coloured member of the group, this bird is sometimes called the White Gerfalcon. The Iceland Falcon (*Falco islandus*) is also an occasional visitor. Gerfalcons were formerly highly esteemed in

* *A Treatise on Falconry*, translated by Col. Phillpot. Published by B. Quaritch, London.

falconry, but they lacked the energy and the supreme "go" of the peregrine.

The Peregrine Falcon (*Falco peregrinus*) has a most extensive range, and, happily, is still a British breeding bird, the nest being generally found on some lofty crag or cliff. In the north of Scotland plenty of pairs still breed, whilst in the south of England a pair nested for many years in the Isle of Wight. Peregrines are found all over Europe, with the exception of Iceland and Spitzbergen, and extend across Siberia, China, Japan, and thence to the Malay Islands, whilst they are also to be found in North-Eastern Africa. In India the Shahin Falcon (*Falco perigrinator*) takes the place of the peregrine, and this bird is largely employed by Indian falconers.

It was because of its wandering habits that the peregrine received its name, this being derived from *peregrinus*, a wanderer. The eggs of this falcon, usually four in number, are large in size, and covered over with blotches of dark red. The game preserver may have a grudge against the peregrine, for undoubtedly it levies a severe toll upon many birds, including grouse and

ducks, but it is a magnificent bird to watch on the wing, being admirably adapted for speed, strength, and endurance. Indeed, it is the most beautiful of all the true falcons to behold.

In falconry, peregrines were the most highly valued of birds on account of their speed and pluck. The hen bird, being the larger of the two, is always spoken of by falconers as the falcon, the male bird being known as the tiercel or tercel. Passage hawks are those birds which are caught during their autumn migration to the south, and these, after being trained, always prove superior to eyasses—*i.e.* birds that have been captured as nestlings. Many passage hawks are taken during the autumn in certain districts in Holland, where arrangements are made for their capture. The falconer establishes himself in a small hut dug out of the soil in a locality where the migrating birds are to be seen. A pole is erected and connected with a cord, to which a live pigeon is tied, the other end of the cord being in the inside of the hut, where the falconer is concealed. This pigeon is also provided with a "bolt-hole" in the turf, as is a second pigeon, and

close at hand is a large bow-net worked by a cord from the hut. The last and exceedingly important part of the equipment is the great grey-backed shrike which is tethered outside the hut. This bird possesses the faculty of seeing the approaching falcon or hawk long before the falconer is aware of its advent, and by the excited movements of this little sentinel he is warned to prepare the lure. By pulling one of the cords, a pigeon is brought to the top of the pole. This attracts the passing hawk, who dashes down to secure his prey, but by neat manipulation on the part of the unseen falconer, the pigeon is allowed to escape, whilst a second pigeon is liberated on the ground. This the hawk falls upon with rapacity, then inch by inch its prey is drawn within the sweep of the bow-net, which suddenly descends, imprisoning the wild visitor. It only remains for the falconer to secure his passage hawk and to carry it off. At once the hawk is hooded and his training begins. He is only fed at first by candle-light, and some time elapses before he is allowed to see the light of day. The successful training of falcons and hawks implies a wonderfully

fine art in the trainer, but certain hawks prove impossible owing to the intractability of their tempers.

Once a hawk is fully trained, it is "flown" at various and different quarry. The long-winged peregrine is naturally an excessively swift bird, able to soar to great heights, and its constant aim is to get above its prey. This it does by ascending in a series of circles. Once fairly aloft, it descends with a rush upon the "marked" bird, which it strikes with its foot. Peregrines are usually flown in couples—a "cast" being the "technical" expression—and heron hawking was considered the cream of falconry. Ducks, grouse, rooks, and partridges are all tackled by peregrines, ducks being particularly swift.

To-day, hawking is but little practised in England, but any one interested in the subject can glean much delight by perusing the various old volumes written upon this sport.

Salvin and Brodrick's "Falconry in the British Isles" * gives an excellent account of the noble art of hawking, whilst a magni-

* Published by Van Voorst, London.

ficent folio work is Schlegel and Wülverhurst's "Traité de fauconnerie." * The illustrations in this latter volume are by the late Joseph Wolf, who had no equal as a painter of the different birds of prey. The coloured plates are in themselves an education to all lovers of birds.

The Hobby (*Falco subbuteo*) is an elegant little falcon, having a softer plumage than the peregrine, and a comparatively greater length of wing. It is remarkably swift on the wing, being able to overtake swallows and martins, for it preys on all small birds, in addition to dragon-flies and beetles. In falconry it is trained to fly at larks, snipe, and quails. Though a spirited bird, it lacks the power and courage of the peregrine.

The hobby is rarely found breeding in England, but resorts in small numbers to the southern and midland parts; it also extends over Europe and Northern Asia into India and Northern China.

The Merlin (*Falco aesalon*), though the smallest of the British birds of prey, is renowned for its courage. Yarrell relates

* Published at Leyden.

an instance of this small falcon striking down a bird of double its own weight. Along with most of the other birds of prey, the merlin is becoming daily scarcer on the British breeding list, being found only in wild and mountainous districts, and usually nesting on the open moor.

Falconers were accustomed to fly this little falcon at snipe, larks, and thrushes, whilst the stronger female merlins took pigeons on the wing.

The Kestrel (*Falco tinnunculus*) is the commonest representative of the group of small falcons, and is found breeding all over the British Isles. As it is the only diurnal bird of prey which wages incessant war against mice, voles, beetles, &c., it deserves far more protection from agriculturists than it receives at present. There is a difference in the colour of the plumage of the two sexes, though the cock is only very slightly smaller than the hen. The eyesight of this falcon is quite remarkable, as from an immense height it "spots" its prey on the ground beneath, and drops upon it with unerring aim.

The "wind-hover" is a most appropriate

KESTREL'S NEST LAID IN A RUIN

name for the kestrel, as it has a constant habit of hanging suspended in the air, its wings beating in rapid motion, its fan-like tail outspread, and its head directed to windward. At times it appears, even when viewed through binoculars, to hang with the wings quite motionless.

Kestrels have an immense breeding range, being found all over the greater part of Europe and Northern Asia, and migrating in winter to the north of China, India, and North-Eastern Africa. Kestrels were found to be of but little use by British falconers, though they are flown by the Arabs.

The following quaint list of suitable falcons and hawks was preserved in an ancient volume relating to falconry :

For the emperor, the eagle or vulture.

For the king, the gerfalcon.

For the prince, the falcon gentle or tercel gentle.

For the duke, the rock falcon.

For the earl, the peregrine falcon.

For the baron, the bastard falcon.

For the knight, the sacre and the sacret.

For the squire, the harrier.

For the lady, the merlin.
For the young man, the hobby.
For the yeoman, the goshawk.
For the poor man, the tercel.
For the priest, the sparrow-hawk.
For the holy water clerk, the musket.
For the knave (or servant), the kestrel.

Passing now to the eagle-like sub-family, we find that some of these magnificent birds of prey have very little right to be included on the British list. As breeding birds most of them are to-day quite unknown, and their inclusion in the British avifauna rests on a few isolated birds which are seen from time to time. Nevertheless, these visitors are exceedingly interesting birds to study.

The Honey-Buzzard (*Pernis apivorus*) is one of these extremely rare visitors, though it has a wide range, being found over most of Europe and parts of Northern Asia. In Sweden—a country dear to the heart of all Nature lovers—this bird breeds within the Arctic Circle, whilst during the winter it migrates to Arabia, Africa, and Madagascar. The honey-buzzard takes its name from the fact that it feeds on the larvæ of bees and

wasps, digging out the combs with its claws and then tearing them to pieces. The nest is usually placed at a considerable height from the ground, and therein are found three buffish-white eggs with dark blotches.

The Kite (*Milvus ictinus*) is another bird that has to be put on the vanishing list of the British Isles. Only a few breeding pairs are now to be found, yet three hundred years ago these birds were the recognized scavengers of the London streets, owing to their habit of feeding on refuse and garbage; they also consume insects, reptiles, and young birds.

The kite's appearance in mid-air has been likened to a "swallow-shaped eagle," and it is a fine sight to watch this bird soaring higher and higher. The kite was very rarely trained for employment in falconry, but was a favourite quarry, from the excellent way in which it baffled the falcon. The nest of this bird is a large structure of sticks, supplemented by all kinds of rubbish, and from two to four eggs are generally laid.

The "glead" is another popular name for the kite (of Saxon derivation), whose breeding range extends to the south of Scandinavia;

whilst in the winter it is to be found in Lower Egypt, Algeria, and Palestine.

There are some eight species of sea-eagles distributed over the world, one species only being met with in the British Isles; this is the White-tailed or Sea-Eagle (*Haliætus albicilla*), but as a breeding bird it is now well-nigh extinct.

This species ranges from Iceland to Japan, across Europe and Northern Asia, occurring also in South Greenland. These eagles are very shy birds, though they do not easily forsake their old quarters. The nest is often placed in most inaccessible spots, and the male and female are said to sit alternately. Two eggs are usually laid, and should these be taken early in the season, the birds frequently lay again. The food of the sea-eagle consists chiefly of fish and water-fowl, though it is also a great lover of carrion, and the yelping cry of the bird is very powerful and shrill.

The Golden Eagle (*Aquila chrysœtus*) is, perhaps, the finest of all the true eagles, and to watch the flight of this splendid bird is a joy to all birdlovers. In the Old World golden eagles range over the whole of Europe

and Northern Asia, extending southwards into Northern China and Himalaya. During the winter months it is a common visitor to Palestine, being also met with in Arabia, Egypt, and Abyssinia, whilst it breeds in Algeria. In the New World it is to be found from Alaska to California and Mexico.

In Britain the golden eagle is only to be found breeding in the Highlands of Scotland.

Owing to the fact that it levies a heavy toll upon blue hares and grouse, which are the *bête noire* of the stalker, this bird is protected in most deer-forests, and year after year the same nest will be occupied.

As far as prey is concerned, the golden eagle feasts largely on hares, rabbits, grouse, &c., with occasional lambs and fawns. The stories of its courage and prowess have been largely exaggerated, though it is a bird possessed of much spirit. In falconry the golden eagle was never employed with much success, being too heavy a bird to turn swiftly, and the sullenness of its disposition making it almost impossible to work with.

Tennyson, who has written so much on

birds, described in apt language this king among birds:

He clasps the crag with hooked hands
Close to the sun, in lonely lands,
Ringed by the azure world he stands.
The wrinkled sea beneath him crawls,
He watches from his mountain walls,
And like a thunderbolt he falls.

The Buzzard (*Buteo vulgaris*) is one of the most pusillanimous of the birds of prey, but on the wing is a fine bird, and every bird-lover must deplore its growing scarcity on the British breeding list. These hawks are characterized by the square shape of the tail, which extends considerably below the wings when closed, and by their thin, mewing cry. All over Europe the buzzard is to be found, breeding either in a tree or on rocks. During the breeding season these birds soar in circles high into the air, and after feeding (their prey consisting of small mammals, birds, and reptiles) they usually take up their station on some tree.

The Rough-legged Buzzard (*Buteo lagopus*) is somewhat larger than the common buzzard, but it is only to be met with as a

visitor to the British Isles in autumn or winter.

The flight of these birds is slow and smooth, and, except during migration, not of long continuance. The rough-legged buzzard is found breeding in Norway and Sweden, the nest, which is made rather late in the season, being generally placed on some high tree, and containing three to five eggs.

The Sparrow-hawk (*Accipiter nisus*) is to be found breeding in most wooded districts of Great Britain and Ireland. For its size it is a dashing and rapacious bird, and levies severe toll upon small birds and mammals. Its flight is of a much bolder and more dashing nature than that of the kestrel, though in habits it is more of a "prowler," stealthily flying through the woods or else dashing out suddenly upon its prey. When in pursuit of game, it has a short, rapid flight, often keeping close to the ground, or else sitting in wait till it spies some suitable quarry.

Sparrow-hawks are distributed all over Europe and Northern Asia, extending in winter-time into the north of Africa, India, and China.

This short-winged hawk was used in falconry, being flown against blackbirds, thrushes, quails, landrails, partridges, &c. They were especially used in woody districts, and were considered, *par excellence*, the hawk of the poor man. In India the sparrow-hawk is much prized by the native falconers on account of its speed and courage, though it should not be flown against too high a wind.

The Goshawk (*Astur palumbarius*) is now no longer to be found in Britain, save as an occasional wanderer. One hundred years ago these birds bred in Scotland, but the hostility of man has exterminated them. Outside of Britain they have a wide range, breeding in Sweden and Lapland.

Goshawks were very highly prized in falconry, and were flown at furred prey—rabbits and hares—as well as at the larger game birds. Instead of " stooping " at their quarry, after the manner of falcons, the goshawk flies along after it, and will not unfrequently follow its victim into covert.

Last on the list of the British birds of prey stand the harriers, three species of which were formerly accounted as common.

In habits they are all similar, roosting on or near the ground, and, when not flapping heavily along, are usually to be seen perched on some low bough or hillock. Their prey consists largely of small birds, mammals, and reptiles, and these they hunt chiefly in the morning and evening, flying often but a few feet from the surface of the ground. The Hen-Harrier (*Circus cyaneus*) so closely resembles Montagu's Harrier (*Circus cinereaceus*) that it is difficult to tell them apart, whilst the Marsh Harrier (*Circus æruginosus*) is almost extinct as a British bird.

It now only remains to mention a few *most* rare visitors among the birds of prey. The Griffon Vulture (*Gyps fulvus*), an inhabitant of South Europe and Africa and Asia, was once obtained in Ireland, whilst the Egyptian vulture has also been twice recorded.

The Spotted Eagle (*Aquila maculata*), a bird from the forests of Central and South-Eastern Europe has visited us on several occasions, as has also the black kite, but these are only occasional visitors.

To the ornithologist it is sad to reflect on the vastly diminishing number of British

breeding species. So many magnificent birds that were a hundred years ago reckoned as common have now to be scheduled as well-nigh extinct. Hawks and falcons are no longer prized as they were of yore. The decline of falconry and the preservation of game have altered man's attitude towards them, but most birdlovers will ever remain strangely attracted by these magnificent and most interesting birds.

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